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ABSTRACT

During the academic year 1978-79, school teams implemented a newly developed early identification system in all kindergarten and grade one classes in London, Ontario schools. After analysis and revision of the system, the internal consistency and concurrent validity of the process and a test of its short-term predictive validity were investigated. During the academic year 1979-80, the revised early identification system was applied in all kindergarten, grade one, and grade two classes. Results of this application were used to assess the internal consistency and concurrent validity of the system over a two-year period. School team ratings for the years 1978-79 and 1979-80 for those students who were in kindergarten or grade one during 1978-79 were compared. On the basis of the degree of agreement between the school team ratings and (1) the speech and language teachers' screening results, (2) the application of the resource allocation formula used with the Learning Resource System, and (3) the degree to which team ratings followed expected patterns with respect to students' grade, sex, and month of birth, it was concluded that the changes introduced have had relatively minor effects on the internal consistency and concurrent validity of the revised early identification system. (Author/MP)

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EARLY IDENTIFICATION SYSTEM: YEAR TWO

R. G. Stennett, Ph.D. & L. M. Earl

Research Report 80-15

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EARLY IDENTIFICATION SYSTEM: YEAR TWO

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Educational Research Services
London Board of Education

In January 1979 a newly developed early identification system (Stennett & Isaacs, 1978) was applied in all kindergarten and grade one classes in all London schools. A preliminary analysis of the results are described in two papers which focus on the internal consistency and concurrent validity of the process (Stennett & Isaacs, 1979) and a test of its short-term predictive validity (Stennett & Isaacs, 1979).

Following a review of the first year's experience, the system's Early Intervention Committee recommended a number of significant changes to the early identification system, as follows: (a) teachers were not required to rank order students before making their final ratings, (b) use of the Myklebust Behavior Rating Scale was discontinued and replaced with a simpler 'Pupil S-A-W Form' for optional use by the teachers, (c) the timing of screening for kindergarten was changed from January to a preliminary screening in October and a final screening in April, (d) the screening system was extended to include grade 2, and (e) teachers and school teams were asked to rate students' probable success separately for language (kindergarten) or reading (grades 1 and 2) and mathematics.

Because of the extent of these changes it was considered advisable to re-assess the internal consistency and concurrent validity of the revised early identification system. All of the 1979-80 screening data were, therefore, submitted to the Research Department for tabulation and analysis. The main focus of this report is the statiscal comparison of the original and revised early identification systems.

RESULTS

Distribution of Ratings

Table 1 gives a distribution of students by grade and school team language (kindergarten) or reading (grades 1 and 2) ratings, separately for the school years 1978-79 and 1979-80. Overall these data indicate good consistency in the distribution of school team ratings by grade across the two years. In addition, the characteristics of the students receiving the various team ratings are very similar. In both years, students rated as '2' or '3' are more likely to be boys, younger (born in the last half of the year), be on the special and language teachers' caseload and be overage for grade. In both years, students rated '3' show these trends to a more marked degree than students rated '2'.

TABLE 1 Distribution of Students by Grade and School Team Language/Reading Rating, for 1978-79 and 1979-80.

Variable		Team Ratings								
		Kindergarten			Grade 1			Grade 2		
		1	2	3	1	2	3	1	2	3
Number of Cases 78-79	N	2107	348	127	2107	388	276	-	-	-
	%	81.6	13.5	4.9	76.0	14.0	10.0	-	-	-
Number of Cases 79-80	N	1993	372	160	1966	483	325	1992	368	222
	%	78.9	14.7	6.3	70.9	17.4	11.7	77.1	14.3	8.6
Percent Male	78-79	48	60	70	49	62	62	-	-	-
	79-80	51	63	70	48	58	65	48	60	62
Percent Born July-December	78-79	47	63	62	52	67	64	-	-	-
	79-80	49	66	74	47	60	62	51	55	58
Percent of Students On Speech/Language Caseload	78-79	-	-	-	8	36	56	-	-	-
	79-80	-	-	-	6	41	74	-	-	-
Percent of Students Over-age for Grade	78-79	0.3	3.8	8.8	8.3	12.4	13.4	-	-	-
	79-80	1.0	2.2	9.1	5.3	13.4	13.5	8.1	18.3	30.9

Concurrent Validity

There are three sets of facts in terms of which the comparative concurrent validity of the original and revised early identification systems can be assessed. These concern the degree of agreement between the school team ratings and (a) the speech and language teachers' screening results, (b) the application of the Resource Allocation Formula used with the Learning Resource System (Stennett & Isaacs, 1977) and (c) the degree to which team ratings follow expected patterns with respect to students' grade, sex and month of birth.

Speech and Language Teacher Screening

The data presented in Table 2 indicate the degree to which the grade one students rated '1' vs those rated '2' or '3' by the school teams did or did not appear on the active caseload of the speech and language teachers during 1978-79 and 1979-80. It is apparent from these data that, in both years, school team ratings correlate very highly with students' presence or absence on the speech and language teachers' caseload.

TABLE 2 Relationship of School Team Ratings to Speech and Language Teacher Caseloads for Grade 1 Students During 1978-79 and 1979-80.

Team Rating vs. Speech and Language (S-L Screening)	1978-79	1979-80
Team Rating 1: Not on S-L Caseload	58.60	68.50
Team Rating 2,3: On S-L Caseload	26.61	18.39
Total Agreement	85.20	86.89
Team Rating 1: On S-L Caseload	9.19	8.53
Team Rating 2,3: Not on S-L Caseload	5.60	4.58
Total Disagreement	14.79	13.11
Overall Totals	99.99	100.00

Resource Allocation Formula

Since the Resource Allocation Formula produces an estimate of the need in each elementary school for remedial assistance in language and mathematics, it follows that this estimate should correlate reasonably well with the number of students in each school given team ratings of either '2' or '3'. Correlation co-efficients calculated between these two sets of data[1] were .792 for the 1978-79 year and .666 for 1979-80. While these relationships are both fairly strong, the revised screening system may have lost some measure of concurrent validity along this dimension.

Grade, Sex and Month of Birth

Based on the premises that: (a) given equal native ability, a younger student will have more difficulty mastering cognitive tasks than an older one, (b) girls mature more rapidly in terms of language development than boys, and (c) the cognitive demands on students increase with grade level, the following predictions were made: (1) boys will have higher (more '2s' and '3s') mean team ratings than girls, (2) younger students (i.e., those born later in the year) will have higher ratings than older students, (3) students in higher grades will have higher mean ratings. In addition, it is possible that sex and month of birth might interact to produce a more pronounced effect, viz., the effect of being born in the latter part of the year might be more pronounced for boys than for girls.

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[1]Data for collector schools were not included in these calculations since the expected relationships would not be expected to hold for them.

Figures I(a) and I(b) show the mean school team language/reading ratings for students grouped by grade, sex and month of birth for the 1978-79 and 1979-80 school years respectively. In both cases, students who were repeating a grade were excluded from the computations. An examination of these two figures reveals that all of the predictions were confirmed. Boys, students born late in the year and students in grade 1 all received less favourable team ratings. In addition, the effect of being born late in the year is more pronounced for boys than girls.

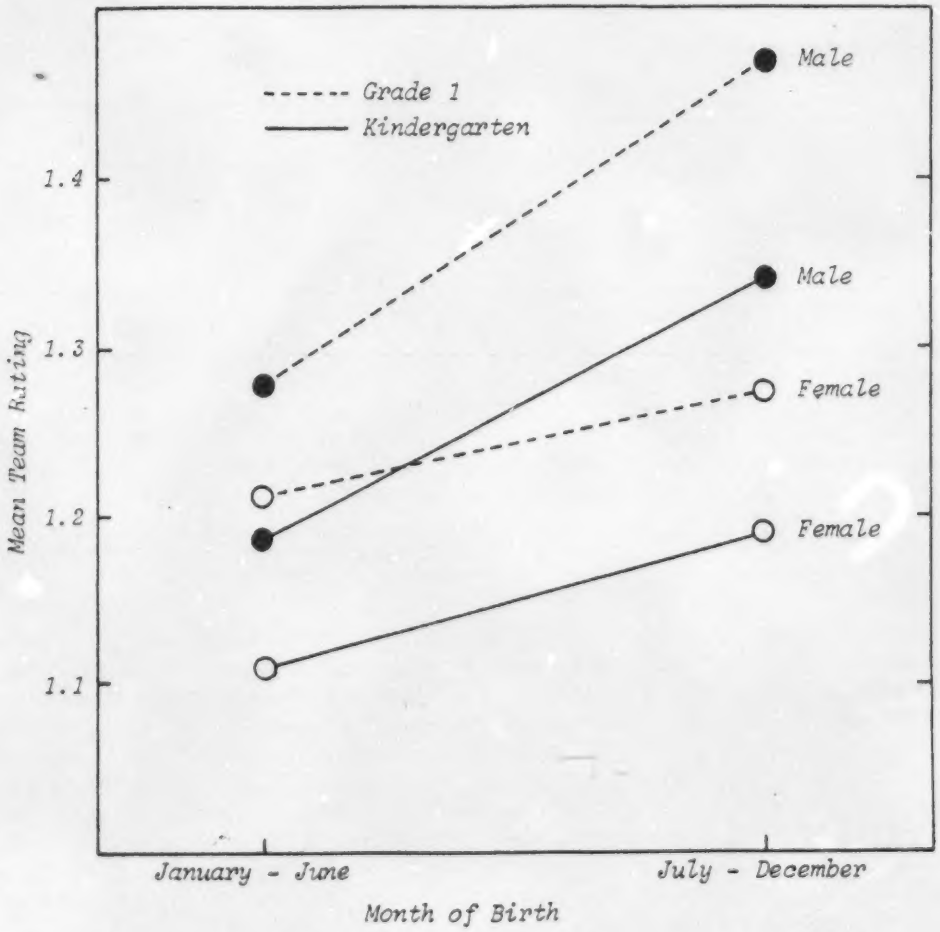

FIGURE I(a) Mean School Team Ratings for Students Grouped by Grade, Sex, and Month of Birth, for the 1978-79 school year.

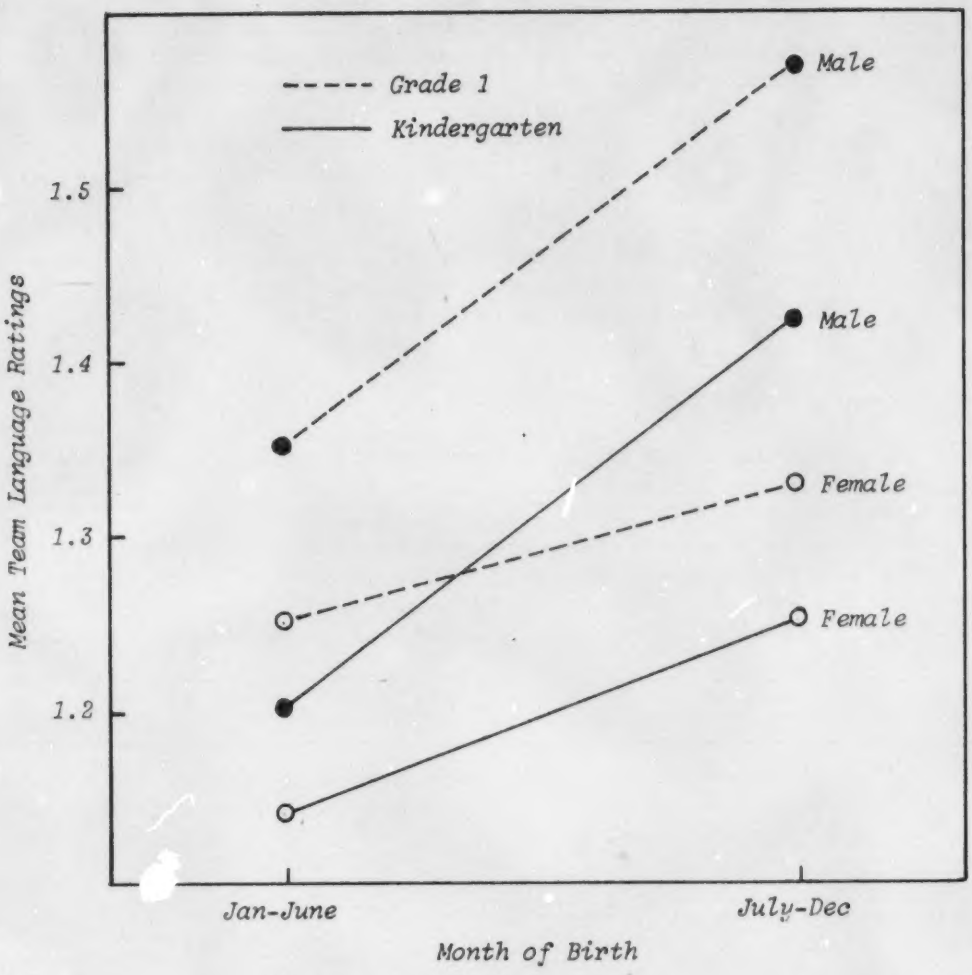

FIGURE I(b) Mean School Team Ratings for Students Grouped by Grade, Sex and Month of Birth, for the 1979-80 School Year.

An examination of similar data for students in grade 2 revealed similar trends, except that their team ratings were intermediate in value between those of kindergarten and grade 1 students and the differential effect on sex and month of birth had disappeared. These findings can be readily explained by examining the data for all of the students who were over-age for grade and were not included in the foregoing analyses. These 662 students, 8.32% of the 7955 studied were predominately (66%) boys and mostly (70%) born in the last half of the year...42% in the last quarter.

Half of these over-age students were enrolled in grade 2. These facts, taken together, mean that the groups of students for whom the grade-sex-month-of-birth analyses were done constitute an increasingly selective sample that contains, by grade level, relatively fewer boys and 'younger' students and relatively more accomplished students. Thus, when over-age-for-grade students are removed from the samples of students studied, the effects of grade, sex and month of birth appear to be progressively less pronounced.

It appears, therefore, that the revised screening system performs as well as the original in terms of the way school team language ratings are distributed by grade, sex and month of birth.

Language/Reading vs Mathematics Ratings

One of the main changes to the original screening system involved having teams make separate ratings for students in the areas of language (kindergarten) or reading (grades 1 and 2) and mathematics. To determine the degree to which teachers and teams produced differential ratings in these two areas, the students were classified jointly by their team language and mathematics ratings, separately by grade. Table 3 gives the number and percent of students that received each possible combination of language and mathematics ratings.

TABLE 3 Number and Percent of Students Receiving Each Possible Combination of Language/Reading and Mathematics Ratings, by Grade.

Grade	Rating	Team Language/Reading Rating					
		1		2		3	
		N	%	N	%	N	%
Kdgn.	1	1965	77.9	117	4.6	18	0.7
	2	25	1.0	249	9.9	36	1.4
	3	3	0.1	5	0.2	106	4.2
Gr.1	1	1940	69.9	204	7.4	21	0.8
	2	26	0.9	263	9.5	92	3.3
	3	0	0.0	16	.6	212	7.6
Gr.2	1	1910	74.0	178	6.9	48	1.9
	2	76	2.9	171	6.6	85	3.3
	3	6	0.2	19	0.7	89	3.4

An examination of these data indicates the following trends: (a) the great majority of students receive identical ratings in both areas, with this trend becoming less marked as grade level increases (kindergarten - 92%, grade 1 - 87%, and grade 2 - 82%), (b) only a small percentage of students are rated '1' in language but '2' or '3' in mathematics (kindergarten, 1.1%; grade 1, 0.9%; grade 2, 3.1%), (c) the relatively larger number of students are rated '1' in mathematics but '2' or '3' in language (kindergarten, 5.3%; grade 1, 8.2%; grade 2, 8.8%).

In general it appears that a student rated as having difficulty in language or reading will also be rated as having difficulty in mathematics but, as grade level increases, there is a slightly increasing likelihood that a student may be rated as having difficulty in one area and not the other. The correlation between team language/reading ratings and mathematics ratings for all students during 1979-80 is .778.

It is also of some interest that a significantly higher percentage of kindergarten to grade 2 students are rated '2' or '3' in language (24.5%) than in mathematics (18.8%). This trend is evident at each grade level: kindergarten, 21.0% vs 16.8%; grade 1, 29.0% vs 21.9% and grade 2, 22.9% vs 17.3%.

SUMMARY

A comparison of the original and revised early identification systems indicates that the changes introduced have had relatively minor effects on the internal consistency and concurrent validity of the system. The predictive validity of the early identification system will have to be assessed using fairly long-term follow-ups and successive cohorts of students.

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